

of warm air superposed by strata of cold air (which I surmise is the prevailing condition on foggy nights) the whole atmosphere is in a state of unstable equilibrium; if you can construct a stack leading from the cooler air down through the

warm air to the earth's surface, will not the cool air descend and spread over the surface, gradually lifting the warmer air it displaces, and will not that produce rain?
[See the Editor's notes on page 113.]

NOTES BY THE EDITOR.

WILLIAM H. HAMMON.

It is so rare that an official of high standing in the Weather Bureau resigns his position, that we are persuaded that the recent resignation of Prof. W. H. Hammon must have been the result of overpowering inducements and persuasive offers from other parties. We certainly hope that coming years will bring to him the profit and the pleasure that he evidently anticipates. By his acceptance of a position in the Philadelphia Gas Company at Pittsburg, Pa., Professor Hammon is brought back to his old family home and enters upon a business career of great promise, but the Weather Bureau loses one of its ablest men.

Mr. Hammon was born in Dicksonburg, Pa., and is a graduate of Allegheny University, and a post graduate of Cornell University. He entered the meteorological work of the Signal Service in July, 1882, and went for instruction to Fort Myer, Va. His first official assignment was as assistant at Charleston, S. C. In May, 1884, he was assigned to duty in connection with the physical laboratory of the Signal Office, where he assisted Prof. Thomas Russell and his successor, Prof. T. C. Mendenhall. Becoming interested in the exploration of the upper air, he volunteered to perform the meteorological work to be carried out in a series of balloon voyages during the first few months of 1885. This work, and the investigation of the apparatus incident thereto, was executed in an excellent manner, and his report, which could not be published at that time, afterward appeared in the American Meteorological Journal for February, 1891, Vol. VII, p. 498-528.

Mr. Hammon was subsequently in charge of stations at Ithaca, Cleveland, and St. Louis, and in May, 1894, was placed in charge of the San Francisco station and forecast district, the latter embracing the States of California, Nevada, Arizona, and Utah. By his administration of this latter charge, during the past five years, he has made for himself an enviable reputation for energy and efficiency. His forecasts of frosts and rains have been universally recognized as extremely reliable and timely. His latest bulletin "Frost: When to expect it and how to lessen the injury therefrom," shows that he has devoted much thought to this subject, and, in response to urgent demands, a large edition of it has been printed.

Mr. Hammon was appointed local forecast official in July, 1891; forecast official in August, 1894; professor of meteorology in January, 1899; his resignation takes effect March 31, 1899.

THE PACIFIC COAST DIVISION OF THE CANADIAN METEOROLOGICAL SERVICE.

It is probably known to only a few of our readers that in the summer of 1898 the Canadian service established a Pacific coast division, with headquarters at Victoria, B. C., where forecasts will be made by Mr. F. Napier Denison.

Mr. Denison expects to issue daily maps and forecasts for his division similar to those issued by the United States Weather Bureau officials at San Francisco and Portland, Oreg. A complete interchange of daily telegraphic reports takes place between these two branches of our respective national weather services, so that the information available to one is

also accessible to the other, the only difference being that reports coming in by mail are interchanged more slowly than those by telegraph. Through the kindness of Mr. Denison, the Editor has received a copy of the daily map prepared by him and the northwestern quarter of this map is reproduced on Chart X. The original base map extends from the Pacific coast eastward to the eighty-fifth meridian, and from latitude 30° N. to 70° N. This places the boundary between the United States and the Dominion of Canada nearly in the center of the sheet, 16 inches broad by 17 inches high. The polyconic projection is adopted, the scale being practically the same as that of the daily map published by the Weather Bureau in Washington and by the meteorological office in Toronto, respectively. In our present reproduction we have added, in dotted lines, the approximate courses of a few lines of telegraph, so that the reader may appreciate how rapidly this country is being opened up, and what are the immediate possibilities of a still further extension of the daily telegraphic weather map. As the upper left-hand corner of Mr. Denison's daily weather map embraces the lower portion of the Territory of Alaska, we have added the new Weather Bureau station at Eagle, and the post route at present adopted for United States mails. The following extract from Mr. Denison's letter will excite the most lively interest in the minds of those who realize how far the forecasts of weather in the United States depend upon by a knowledge of what is transpiring in that distant region.

This is certainly an ideal field for studying the various weather changes, which, as you know, are more difficult to anticipate here than further east, however, I am getting a grand insight into some of the complex problems, and I hope during this summer by studying last winter's charts, to be able to do some really valuable forecasting. As it is the public appreciates our work, and thinks we are doing very well. We are now using a new chart, specially designed for future expansion northward, even including Dawson, which most certainly will be made one of our telegraphic stations as soon as the projected wire communication is completed. I send you under separate cover a copy of one filled in, showing how after receiving Port Simpson by mail we are even now able to draw our isobars far further north than heretofore, and locate more accurately the true position of the north Pacific "highs" and "lows."

MIROBIA AND SEICHES.

In the MONTHLY WEATHER REVIEW for December, 1898, page 563, we have quoted a paper by Mr. F. Napier Denison, in which he states that the term *mirobia* was first introduced to English readers by Admiral Smythe as a word used at Malta as the name of regular recurring waves similar to the seiches of the lakes in Switzerland. Mr. Denison has been studying the same phenomena on the Great Lakes, and for fear least the Editor may have misunderstood Mr. Denison's position in this matter, the latter writes as follows:

You seem to think I have taken up the study of water undulations on both lakes and ocean as of more value in a meteorological point of view than the study of the atmospheric waves shown on the various barographs, which latter waves I have tried to prove set up the water undulations. Now this was never intended. I have been endeavoring simply to draw attention to the fact that as the water surface responds to the passage of atmospheric waves over it, therefore the records from tide gauges would often show marked undulations at stations where no barographs are; or even should the latter be also there, only the largest undulations will be seen, as the present instrument in common use gives a weekly curve which means too small a time scale and baro-

metric scale to show the smaller undulations. These are really the most important ones, as they often occur during fine weather when the storm may be hundreds of miles distant. Then again I have found ordinary observers allow too much friction between the pen and paper, and often do not keep the pen point as fine as it should be. For this and many other reasons I have made a strong plea for the universal introduction of extra sensitive barographs with open scale, and teach those in charge the true value of these minute undulations. I find these secondary tidal undulations beautifully recorded upon the Esquimaux gauge sheets, and now that my large hydro-aerograph has arrived I hope to make a minute study of this phenomenon in the Victoria Harbor.

METEOROLOGICAL REPORTS BY CABLE FROM ICELAND.

In 1880 Hoffmeyer gave utterance to the oft expressed conviction of many meteorologists that daily telegraphic reports from Iceland would be of inestimable value in weather predictions for Great Britain and northern Europe. This subject has been favorably reported upon several times by the International Meteorological Committees and Congresses (Berne, 1880; Copenhagen, 1882; Munich, 1891; etc.) The commercial intercourse with Iceland would, however, evidently not pay the interest on the cost of the cable, and it is only quite lately that the Danish meteorologists have received from business men a proposition that makes the project seem at all feasible.

The "Grande Compagnie des Télégraphes du Nord," having its center at Copenhagen, calculates that the expense of the installation of the cable from Shetland, touching the Faroe Islands and ending at Iceland, together with the land lines will be \$600,000, and that an annual payment of \$36,000 for twenty-eight years would liquidate this debt. The maintenance of the cable and stations adds \$32,000, so that an annual revenue of \$68,000 must be provided for.

The above-mentioned telegraph company will undertake to build and to maintain the line if it is guaranteed this annual revenue for the first twenty years only. The Government of Denmark and Iceland will establish and maintain the meteorological stations and the expense of daily telegraphic bulletins, and will perform the hydrographic work necessary in connection with the laying of the cable, and will also guarantee an annual subvention of \$25,000 for twenty years. Therefore, all that now remains to be done in order to secure telegraphic communication with Iceland for commercial and meteorological purposes is to secure the remaining annual income of \$41,000. It is hoped and believed that a large portion and perhaps all of this may be secured by national legislation in the States of Europe and America that are interested in this subject. The sums required from each of these would scarcely amount to the salary of one or two employees, and would be abundantly counterbalanced by the increase in our knowledge of the atmosphere and our ability to make predictions of storms and cold waves.

There is, in fact, no reason why the larger newspapers of the world should not also add their contributions as the news items will, of course, have a commercial value.

At present American meteorological services seem to be deeply interested in extending their own systems north, west, and south, rather than eastward.

THE INTERNATIONAL METEOROLOGICAL COMMITTEE.

The next meeting of the International Meteorological Committee has been called for the 25th of August, 1899, at St. Petersburg. The following are the members of the committee as selected by the International Conference, Paris, September, 1896. (See MONTHLY WEATHER REVIEW, October, 1896, p. 367):

E. Mascart, France, *President*.
Robert H. Scott, Great Britain, *Secretary*.
W. V. Bezold, Germany.
R. Billwiller, Switzerland.
J. de Brito-Capello, Portugal.
Walter R. Davis, Argentine Republic.
John Eliot, India.
Julius Hann, Austria.
Stefano Hérites, Roumania.
H. H. Hildebrandsson, Sweden.
H. Mohn, Norway.
Willis L. Moore, United States.
Adam Paulsen, Denmark.
H. C. Russell, New South Wales.
M. Rykatcheff, Russia.
M. Snellen, Russia.
P. Tacchini, Italy.

Vacancies occasioned by death or resignation may be filled by the committee. The committee may also invite others to take part in its discussions.

Besides this general International Committee there were several special committees appointed by the International Conference, such as the subcommittee on international telegraph service; the subcommittee on terrestrial magnetism and atmospheric electricity, whose last meeting was held at Bristol, England, August, 1898; the subcommittee on instruments and methods of observation; the subcommittee on clouds, under whose initiative a special work on this subject was conducted during the year July, 1897-98; the subcommittee on aeronautics, whose meeting at Strasburg in 1898 was reported upon by Mr. A. L. Rotch in the MONTHLY WEATHER REVIEW for April, 1898, p. 158.

The reports of these subcommittees and the questions thus far proposed for discussion by individual meteorologists are embodied in the following provisional program of the meeting to be held at St. Petersburg. This meeting of the General Committee will, also, undoubtedly, designate the time and place of the next general conference.

1. Report of M. Rücker on terrestrial magnetism and atmospheric electricity.
2. Report of M. Hildebrandsson on clouds.
3. Report of M. Hergesell on balloon ascensions.
4. Report of M. Violle on radiation and insolation.
5. Rykatcheff.—Is it desirable that the committee should occupy itself with observations of earthquakes?
6. von Bezold.—Antarctic explorations.
7. Hildebrandsson.—The centers of action of the atmosphere.
8. Rykatcheff.—Definition of the meteorological day.
9. Rykatcheff.—Instructions for the use of sunshine recorders.
10. Rykatcheff.—Rules for the determination of soil temperatures.
11. Rykatcheff.—Precautions to be taken in using alcohol thermometers.
12. Rykatcheff.—Symbol to be employed for designating low fog.
13. Rykatcheff.—Define the meaning of the symbols employed to designate storms.
14. von Bezold.—Protection of magnetic observatories against industrial electrical works.
15. Hann.—Proposition for the publication in a special form of the tables of the diurnal range of temperature in each country.
16. Hann.—Importance of actinometric observations.
17. Teisserenc de Bort.—Installation of anemometers.
18. Teisserenc de Bort.—Employment of carrier pigeons by the transatlantic steamers for conveying information as to the weather west of Europe.
19. Date of the next International Conference.

METEOROLOGY IN RUSSIA.

On the 13th of April, 1899 (April 2, according to the old style calendar as used in Russia), the Central Physical Observatory in St. Petersburg celebrates the fiftieth anniversary of its foundation. This will be made a notable festival occasion. The Czar and many of the highest dignitaries in diplo-